The impact of Treasury yields on US presidential approval, 1960-2010

The impact of Treasury yields on US presidential approval, 1960-2010

Abstract

The 'power of bond markets' is a widely assumed and poorly understood feature of the global economy. We demonstrate that even in a bond market as stable as the United States this influence is considerable. In this article we scrutinize a particularly direct influence, the impact of U.S. Treasury yields on presidential approval rates. Our empirical analysis from 1961-2010 demonstrates that rising/falling bond yields lead to a decline/increase in approval rates. We show that this impact is mediated via the U.S. mortgage market. The stronger the rise in mortgage rates, the stronger the influence of Treasury yields on presidential approval. We then outline the broader possible political impacts of this, particularly given foreign and domestic central bank ownership of US Treasuries.

Introduction

The power of 'bond market vigilantes' to constrain government policy options has long been a central interest in a variety of academic literatures, and with good reason. The importance of US Treasury yields - the cost of borrowing the US government pays on its bonds - famously prompted campaign strategist James Carville to quip he wanted to be reincarnated as the bond market: as the bond market, 'You can intimidate everybody'. Bond yields influence interest rates throughout the economy, determine the cost of government borrowing to fund public expenditure and thereby constrain policy choice (Mosley 2003; Rommerskirchen 2015). This political influence has long been the basis of the 'power of the markets'.[1]

Within political economy, the debate around the political impact of creditors, whether in the case of the United States or elsewhere, has thus far assumed an indirect impact on the democratic process itself. Two causal mechanisms dominate: either investors influence bond yields, which influence a government's ability to balance taxation, spending and borrowing, which in turn influences the voting intentions of an electorate; or investors influence bond yields, which influence the overall performance of the economy, which in turn influences the voting intentions of an electorate. Studies of how economic conditions can impact on democratic politics are of course not rare. By one estimate there have been over 600 articles on economic voting (Lewis-Beck and Costa Lobo 2017). The literature distinguishes between egocentric, self-interested voting, in which individuals approve of and back in elections those parties or leaders that are good for their pocket book, and socio-tropic voting, in which national economic conditions influence voters (see, for example, Kinder and Kieweit 1981, Clarke et al. 1992, Lewis-Beck and Stegmaier 2000).

Kieweit and Lewis-Beck (2011) caution that sociotropic voting can include those motivated by altruism and the public interest and those using national economic conditions as a proxy for personal economic conditions. In addition, evaluations can be retrospective or prospective (Fiorina 1981). By far the majority of studies address valence considerations, that is assessments of the economic performance of political actors (see, for example, Kinder and Kiewiet 1981, Clarket et al 2009, Whiteley et al 2013), but positional (Stokes 1963, Butler and Stokes 1969) and patrimonial or wealth explanations have also been shown to have independent effects (Lewis-Beck and Nadeau 2011; Lewis-Beck et al. 2013).[2]

Within the political economy literature, therefore, the causal mechanisms implied are consistent with both egocentric and sociotropic models of the influence of bond yields on politics, with causal chains that involve a range of intervening variables, most importantly regarding government policy options or preferences and voter circumstance.

In this article we bring these literatures together to focus on a possible source of investor influence on politics. We ask whether government bond yields impact on citizens' satisfaction with incumbents, by considering the link between US Treasury yields and presidential approval ratings. This offers more than a new economic variable to add to the existing literature on economic voting. It represents a substantial additional source of investor influence, but one in which the influence on voters is more direct and the ability of government to curtail that impact is more limited.

Presidential approval matters not only in itself, but because it affects electoral politics very broadly and can influence domestic (Cane-Wrone and Shotts 2004; Barnett and Eshbaugh-Soha 2007; Greer 1996; Druckman and Jacobs 2015) and foreign policy (Ostrom and Job 1986; Levy 1989; Morgan and Bickers 1992; Andrade and Young 1996). It influences performance in presidential (Newport and Carroll 2003), congressional, senatorial and gubernatorial contests (Kernell 1977; Abramowitz and Segal 1986; Hummel and Rothschild 2014), improves perceived legitimacy (Canes-Wrone and De Marchi 2002) and can serve to shift the legislative attentions of Congress (Lovett et al. 2014).

We are interested in the way that bond markets can influence presidential approval. In so doing, our work builds on and adds to the research on the relationship between politics and markets. A number of scholars have scrutinized how politics influence markets, be it stock markets (e.g. Roberts 1990; Herron et al. 1999; Jones and Banning 2009) or bond markets (e.g. Schultz and Weingast 2003; Saeigh 2005; Vaaler et al. 2005; Bialkowski 2008). We rather focus on the potential impact of *markets on politics*, which has been a prominent theme in international political economy going back (at least) to the work of Karl Polanyi (1957).[3] Our work fits within a larger body of research related to the economic voting literature, which considers the impact of economic conditions on presidential approval (Norpoth 1984; Beck 1991; MacKuen et al. 1992, 1996; Clarke et al. 1994a, 1994b; Erikson et al. 2000; Lewis Beck and Stegmaier 2000; Berelmann and Enkelmann 2014). The bulk of previous work has focused on the impact of unemployment and inflation, but we also see attention to other objective indicators such as the stock market (Fauvelle-Aymar and Stegmaier 2013; Alter and Goodhart 2003, see also Sen and Donduran

2017 on the UK) or subjective perceptions of economic conditions (Burden and Mughan 2003; Lebo and Cassino 2007). There is not a consensus, however, on whether and why different economic predictors influence approval.

Why might the bond market influence presidential approval rates? There are both sociotropic and egocentric routes to influence, each of which could explain our hypothesised causal explanation of the link between US Treasury yields and presidential approval. Lower bond yields could facilitate greater spending, which would influence sociotropic evaluations of economic performance. Our contention is that one way this influence occurs is via the mortgage market. The influence of bond yields on US mortgage rates is substantial, and house prices are in turn strongly influenced by the availability and cost of borrowing. A link between house prices and general economic activity relies on the impact of the 'wealth effect' of such price changes on consumption. The bulk of such a wealth effect is perceived to be slow, but is apparent nevertheless (Carroll et al. 2006). The direct egocentric motivation from the cost of borrowing to voters' preference is therefore a more direct political influence. Here, the bond market matters because a substantial segment of the US population are homeowners, or aspire to be so. As of the second quarter of 2018, there were 80 million outstanding US mortgage loans totalling US$9 trillion (Federal Reserve Bank of New York 2018). That is a lot of voters owing a great deal of money and owning houses that form the bulk of their wealth. Housing could therefore have an impact on voting intentions either because of the value of housing or the cost of borrowing, in either retrospective or prospective voter assessments.[4] Furthermore, the structure of US mortgages with their built-in link between bond yields and mortgage rates, is an international anomaly. In the majority of developed economies' housing

markets, mortgagees are tied to short-term interest rates. For example, more than 90 percent of the mortgages in Australia, Ireland, and Spain are variable-rate mortgages (Lea 2010, see also Mertens 2017). This means more power for the central bank in terms of traditional monetary policy, as a change in short-term interest rates by the central bank can shift mortgage payments and the initial cost of new home loans. In the United States, by contrast, the Federal Reserve (Fed) is left with less direct control over developments in the housing market through its control of short-term interest rates, but the additional measures of unconventional monetary policy have a greater relative impact. Such national variation in housing finance have political consequences (Schwartz and Seabrooke 2009).

The influence of foreign investors on the conditions in the US mortgage market have featured prominently in explanations for the housing price boom which preceded the bust that led to the 2008-09 financial crisis (Caballero and Krishnamurthy 2009: Bernanke *et al.* 2011) and is connected to the 'savings glut' explanation of the financial crisis (Bernanke 2005). Much of this discussion has focused on the fall in US Treasury yields reducing interest rates across the economy, including in the mortgage market, but there has also been analysis of foreign purchases of Mortgage Backed Securities (MBS), securitizations of residential mortgages (Bertaut *et al.* 2011; see also Schwartz 2009). The direct domestic political consequences of these developments has however not been explored, with any impact implicitly studied via improved economic growth. Our analysis certainly does not preclude direct impact on presidential approval from foreign investment in securities related to mortgage finance, such as agency debt and MBS, or from Fed purchases as part of their crisis

response. Indeed, it suggests that this is highly likely, even if demonstrating it is outside the aim of this article.

The article proceeds as follows. We discuss the structure of US bonds and lay out the transmission link between developments in treasury yields and the mortgage market. This forms the basis of our two research hypotheses; first, on the impact of bond yields on approval rates and second, on the role of mortgage rates in mediating this effect. Next, we describe our data and methodology. We then discuss findings and outline a battery of robustness tests. The article's conclusion outlines implications of the main findings in terms of understanding the impact of markets on politics

From bond yields to presidential approval

The potentially broad impact of movements in bond yields is reflected in the former Fed Chairman Alan Greenspan's proclamation that if he could only view one bit of data to give him a sense of what was occurring in the US and global financial markets, it would be the yield on the 10-year US Treasury (*Forbes* 22.12.2014).[5] Given that bond yields are a key measurement of the state of the economy, they, like other indicators of economic health, are presumed to have a direct influence on presidential approval. Bond yields are indicative of the prosperity side of the 'peace, prosperity and probity' function (Ostrom and Smith 1992: 128) of presidential approval. All things being equal, and put (too) simply, stable low bond yields are associated with the kind of sunny economic climate that should bode well for presidential popularity. We argue here, however, that they exert an independent impact on presidential approval, distinct from economic growth, inflation, unemployment and financial market risk. This is in line with both egocentric and

sociotropic models of voters' behaviour as it can speak to people's personal pocketbook gain and societal economic gains in economically favourable times.

The mortgage market

We hypothesise that government bond yields influence incumbent approval ratings in the United States via housing finance. This is because the cost of the standard fixed rate mortgage in the US is directly linked to government bond yields. As government bond yields rise or fall, mortgage providers constantly adjust the borrowing cost for the standard fixed rate mortgage they offer, maintaining a differential with the appropriate government bond yield. The lower (higher) the government bond yield, the lower (higher) the cost of new mortgages. This means a direct impact 'in the pocket' for any new borrowers. An unusual aspect of the US mortgage market makes government bond yields even more significant. The traditional American mortgage is a thirty-year, self-amortizing (paying off both principal and interest), fixed-rate loan with an *unlimited* right of the borrower to prepay (and hence to refinance) at any time. Although originally introduced as an emergency measure during the Great Depression, this type of mortgage has become mainstream and accounts for 95 percent of mortgages in the United States (Zywicki 2013). The right to refinance mortgages (provided mortgagees find a lender), means that the benefit of lower government bond yields flows directly also to many existing borrowers, rather than being confined just to new borrowers or those from whom they buy houses. In 2016, refinancing represented 47 percent of single-family residential mortgage borrowing in the US (Freddie Mac 2018). The volume of refinancing of mortgages has been much more volatile, and directly influenced by government bond yields, than borrowing for initial home purchase.[6] Furthermore, further borrowing against the rising value of

your house is especially significant in the US. Homeowners can 'cash out' the gains from rising house prices to finance increased consumption. Such activity peaked in Q2 2006 at US$84 billion (Freddie Mac 2015, 2). The pricing of such loans is also mainly linked directly to government bond yields.[7] Voters will therefore gain financially from lower government bond yields. Indeed, government bond yields should have an impact on voters' pockets that will likely be more widespread across the voter population than actual or threatened unemployment, and arguably more direct (thanks to the 'money illusion'[8]) than inflation. In addition to these egocentric influences, we should also expect US Treasury yields to influence voters whose main motivation is their concern with the performance of the economy as a whole.

Despite these possible routes to influence, to date no published academic study has explored the impact of bond market performance on presidential approval. We would expect to see that as bond yields decline, presidential approval increases. Conversely, we expect that as bond yields increase, so too will disapproval of the president. This effect, we argue, is transmitted via mortgage rates.

Hypothesis 1: A rise/fall in bond yields has a negative/positive impact on presidential approval rates.

Our first hypothesis is that there is a link between bond yields and presidential approvals but, for the moment, we do not seek, in testing this hypothesis, to determine whether that is due to the sociotropic or egocentric evaluations of voters. Our second hypothesis clarifies the route by which bond yields influence presidential approval:

Sub-hypothesis: The impact of bond yields on presidential approval rates is mediated by the housing market.

Methodology

We empirically test whether, and if so to what extent US presidential approval rates respond to movement in bond yields. We estimate a model based on monthly time-series data, 1960–2010, where presidential approval is a function of bond yields and a set of political and economic control variables. Our decision to use monthly data for a run of more than fifty years is in part due to the documented volatility in economic indicators as predictors of presidential approval over shorter periods (Berlemann and Enkelmann 2014).

Throughout we rely on a bespoke dataset composed of aggregate data from different sources. The dependent variable is presidential approval (*Approval*) as measured by Gallup – the 'Dow Jones Index for Politics' (Brehm 1993: 6). Approval rates are aggregated monthly values using the last survey of the month to generate the monthly approval rates. Our key independent variable ($\Delta Yield$) is the US Treasury 10-year bond yield. A sovereign bond yield measures the return on investment, expressed as a percentage, on a government's debt obligations (bonds, notes and bills). The Treasury yield in question is then the interest rate on US government debt for 10 years in the secondary market. In line with our preceding discussion we expect this variable to be negative. We use the first difference (change) in bond yields, to correct for the fact that the *Yield* term is non-stationary (see Appendix Table A1).

Housing market variable

As stated in our sub-hypothesis, we presume that a key channel through which bond yields impact on presidential approval is via the housing market. The active housing policies of past presidents illustrate the importance of this market segment. US presidents have sought ways to boost homeownership as a way to curry favour with their electorate, notably via the government sponsored entities Freddie Mac, Fannie Mae, and the Federal Home Loan Banks or subsidies such as the mortgage interest deduction tax benefit. The fixed-rate dominated US mortgage market is highly sensitive to fluctuations in 10-year bond yields. Our variable of choice to investigate this link is the 30-year, fixed-rate conventional mortgage rate (*Mortgage*). To address stationarity, we use the first difference. Between 1971 and 2010 mortgage rates ranged between 3.96 and 18.45 percent and monthly differences ranged from -2.07 percentage points to + 2.24.

Economic control variables

We include five headline indicators to control for the domestic and international economic climate. These variables are not only necessary due to their presumed explanatory force on presidential approval, but because they also are related to government bond yields. Controlling for these thus allows us to isolate the source of influence of sovereign bond yields on presidential approval.

1) First, *ΔGDP* measures the annual Gross Domestic Product growth rate. We expect GDP growth to be positively associated with support for the president. Controlling for GDP growth also accounts for the overall economic impact of rising or falling bond yields. Government bonds represent the benchmark interest rates for the whole economy, not only the housing market, setting a minimum level for all borrowing and thereby strongly influencing economic activity. For

incumbent governments, a healthy economy is a significant influence on the chances of re-election (Nickelsburg and Norpoth 2000; Mcavoy 2006). The importance of government bond market yields (as the benchmark for borrowing costs across an economy) makes those yields a central concern for macroeconomic analysis.

2) The unemployment measure (*Unemployment*) consists of the monthly unemployment rate. When unemployment rises, approval of the president should decrease. Unemployment also influences sovereign bond yields (e.g. Goldberg and Leonard 2003). Yet the causal chain is not a simple one. The low unemployment of good economic conditions could reduce bond yields, because of the positive impact on the government budget, or more likely they could increase yields, as the potential pressure of low unemployment on wages raises inflation concerns to which the Fed might react with higher interest rates. Low bond yields may therefore have a positive impact on future economic activity and thus employment, but there is no unambiguous link between government bond yields and the current or future performance of the economy.
3) *Inflation* is the monthly estimate of the inflation rate. We expect that an increase in inflation will lead to a decrease in presidential approval rates. What is more, we control for inflation to account for the relationship between bond yield movements and price levels. On the one hand, low inflation could result in falling bond yields. Most bonds are fixed in nominal terms (i.e. not adjusted for inflation). That means that inflation erodes the real value of sovereign bonds. Investors seek to minimize this loss of the real value of their assets (see Mosley 2003; Tomz 2007) by demanding higher interest rates which push up bond yields. If inflation risk is however considered low or even negative, like in most post-

crisis Western economies today, bond yields fall (*ceteris paribus*). On the other hand, the popularity of government bonds during any 'flight to quality', particularly in the US, could mean bond yields are a direct beneficiary of serious economic difficulties, possibly regardless of inflation.[9]

4) Fourth, we include government expenditure as percentage of GDP (*Expenditure*). The impact of government spending on presidential approval is contested. In line with the political business cycle literature, Presidents are charged with manipulating fiscal and monetary tools to enhance approval ratings (Golden and Poterba 1980). Yet there is also evidence that this strategy can backfire, particularly if voters perceive spending to be wasteful or excessive (Pelzman 1992). Controlling for public expenditure also accounts for the effect of bond yields on government's room to move: higher (lower) borrowing costs constrain (facilitate) government spending in other areas, including spending with potential electoral benefit for incumbents (Mosley 2003). Debt servicing costs make a substantial dent in the Treasury's coffers; in 2017 they totalled US$ 263 billion on the federal debt alone or 6.6 per cent of federal net outlays (Federal Research Bank of St Louis).
5) We furthermore control for financial market risk aversion. We not only expect market risk to impact on presidential approval, but also control for the risk climate in the context of bond yields and mortgage rates. When risk is perceived to rise, investors tend to sell their risky assets (such as stocks) and buy safe assets (notably US Treasuries). Rising financial market risk increases demand for Treasuries and thereby pushes bond prices higher and yields lower. We use the change in Moody's Seasoned Baa Corporate Bond Yield Relative to Yield on 10-Year Treasury Constant Maturity as our $\Delta Risk$ variable, a conventional proxy of

general market risk aversion (Codogno et al. 2003; Bernoth and Erdogan 2012). High market risk often spells economic instability which is unlikely to be welcomed by the electorate. We thus expect presidential approval to decline with rising financial market risk.

Political control variables

In addition to these five economic variables, we include political controls common in the literature on presidential approval rates.

1) There is evidence that divided government has an impact on presidential approval. In line with work on blame attribution in coalition government (e.g. Powell and Whitten 1993), various studies have argued that divided government diminishes 'clarity of responsibility' and has a positive effect on presidential popularity (e.g. Nicholson et al. 2002; Fauvelle-Aymar and Stegmaier 2013). We include the variable *Divided* which is a dummy coded (1) if government is divided – the presidency and at least one chamber of Congress are controlled by different political parties – and (0) if unified.
2) We furthermore control for the period of goodwill which presidents experience during their first months in office (Mueller 1970; Smyth and Dua 1989). The dummy variable *Honeymoon* equals (1) in the quarter when a new president is inaugurated.[10]
3) The literature of presidential approval strongly demonstrates that significant political events have an immediate effect on presidential approval rates (e.g. Mueller 1973; Brody and Page 1975; Kernell 1978; Ostrom and Simon 1985; Brace and Hinckley 1991; Clark et al. 1994; Parker 1995; Norpoth 1996; Newman and Forcehimes 2010). [11] We include variables for the following events:

Vietnam War, Watergate, Gulf War, Iraq War, Iran-Contra and September 11 (Vector *E* below).[12]

4) We include a set of administration dummies as is customary in the literature. This controls for president-specific effects on popularity ratings. (Vector *A*).

By including a range of different economic indicators, as well as variables covering events, wars and political variables we seek to avoid omitted variables bias. While a greater number of variables runs the risk of multicollinearity, and there are varying levels of correlation across the economic predicators, the tolerance statistic (Mean VIF of 1.38) suggests there is no problem of multicollinearity across our variables.[13]

Econometric model

[Fig. 1 about here]

Figure 1 presents the US presidential approval time series together with the movement of 10-year bond yields. The dashed vertical lines mark administration changes. As we can see, approval fluctuates, at times dramatically. The highest presidential approval rates occurred during so called 'rally around the flag' events (Mueller 1970); the September 11 attacks (2001) and the First Gulf War (1991). The lowest approval rates, below 30%, resulted from the public's response to the Watergate scandal (1974) and the financial crisis (2008). Nickelsburg and Norpoth (2000: 318) remark that there 'are forces at work restoring the balance in approval rates. Sooner or later sky-high rates return back to earth, and rock bottom rates bounce back up'. While a correction of these high-rise ratings often takes place during a given president's term,

base ratings often only recover after the election of a new president. The 'public hand' (ibid.) in restoring equilibrium in presidential approval is undeniable.

Summary statistics of all variables, data sources, and the expected signs of the independent variables are shown in Table 1. We should note that unit root tests were performed to assess the stationarity of our variables. In those instances where variables are non-stationary we have used the first difference transformation. As a result, all the variables used in the model are stationary.

[Table 1. about here]

To assess the relationship between bond yields and presidential approval we have estimated the following model:

$$Approval_t = \alpha + \beta_1 \Delta Yield_t + \beta_2 \Delta Risk_t + \beta_5 \Delta GDP_t + \beta_3 Inflation_t + \beta_4 Unemployment_t + \beta_5 \Delta Expenditure_t + \beta_6 Divided_t + \beta_6 Honeymoon_t + \beta_7 E_t + \beta_8 A_t + \varepsilon_t$$

We are relying on monthly time-series data and it is therefore crucial to account for the potential of serially correlated errors. To deal with this issue some presidential approval studies estimate robust standard error OLS model with a lagged dependent variable (e.g. Kernell 1978; Ragsdale 1987; MacKuen et al. 1992; Nadeau et al. 1999). There is reason to be cautious about the inclusion of lagged dependent variables as regressors (Newman and Forcehimes 2010). The use of partial adjustment models solves autocorrelation problems. Yet these models make specific implicit

assumptions on the lag structure of the effects of independent variables on presidential approval which are not necessarily uncontroversial (see Berlemann and Enkelmann 2014). Beck (1991) objects that '[just] because the [partial adjustment] story has proven useful in economics it does not make it a natural story for political science'.[14] In order to avoid the specific assumptions of partial adjustment models, we estimated the model with Newey-West robust standard errors, which in a time series context are robust to both arbitrary autocorrelation (up to 12 lags were specified, as is recommended with monthly data)[15] as well as arbitrary heteroscedasticity.[16] We performed a battery of further checks, which are not presented here to conserve space, but which are available in the online Appendix. Specifically, we test for robustness of results regarding the impact of stock market movements, the maturity structure of bonds, the endogeneity of bond yields, consumer sentiment, and the president's term duration.

Findings

The results in Table 2 provide support for our main hypothesis. The first column of Table 2 shows results with changes in bond yields as sole explanatory variable – a model with no explanatory power. The second column presents results with only the economic control variables included as regressors. The third column presents the main model specification and the forth column produces the main model without administrative dummies. As predicted, bond yields have a negative impact on presidential approval rates. According to our main model (last column of Table 2), a 1 percentage point increase in bond yields would lead to a reduction in presidential approval rates of almost 5 percentage points, all other things being equal. This should be seen in the context of presidential approval generally being within a band of 30 –

80 percent over the period analysed (see Figure 1), and changes in US Treasury yields varying between -1.76 and +1.61 percentage points.

[Table 2. about here]

All five economic variables have the expected signs, although the coefficient of *Inflation* and *ΔExpenditure* are not statistically significant in all specifications. Of all economic controls our risk measure has the strongest coefficient. An increase in financial market risk aversion of 1 percentage point leads to a decline in presidential approval of almost 10 percentage points. The coefficient looks, at -9.78, impressive. It is however worth considering the distribution of this variable. Since we measure change in Moody's Seasoned Baa Corporate Bond Yield Relative to the Yield on the 10-Year Treasury Constant Maturity, the actual value of the variable does not fluctuate much, with the median value at .004. This means that most of the time the risk measure does not impact substantially on presidential approval. The average movement does not lead to even a half percentage point difference in approval rates. It is however in times of dramatic market up- or downswing that market risk can make a substantial difference. The heightened risk aversion amidst the uncertainty of the financial crisis in 2009, for instance, reduced approval rates by almost 10 percentage points. On the flip-side, the sunny economic climate of the spring of 1980 and its accompanying drop in market risk gave presidential approval rates a boost of the same magnitude.

The impact of unemployment on presidential approval is also substantial. Comparing unemployment levels of 5 per cent to 9 per cent, our results translate into a reduction of presidential approval of -10 percentage point, *ceteris paribus*. GDP growth has a

positive albeit modest impact, with an increase of 1 percentage points for every 1 percentage point growth. Our political controls have the expected signs and are largely significant in line with our expectations based on the existing literature.

The effect of bond yields conditional on rises in mortgage rates

To further investigate the link between the bond market and presidential approval, we include a measurement related to developments in the mortgage market. We hypothesised that the impact of bond yields is mediated via housing finance. Mortgage rates change when Treasury yields change. Our data confirm this relationship with the changes in the contract rate on a 30-year, fixed-rate conventional mortgage (*Mortgage*) being strongly correlated to movements in the ten year bond market ($r(488)= .62$). We also correlated the difference in ten-year bond yields with other housing market variables, namely house prices, homeownership rates and household debt and found no strong pattern of association. To further investigate this relationship, we include a mortgage rate measure (*Mortgage*), its squared term (*Mortgage2*) and its interaction with changes in 10-year bond yields (*ΔYield*Mortgage*) in our main model. The assumption behind this non-linear modelling is that the more mortgage rates increase, the more presidential approval rates will be negatively affected. Individual mortgage lenders will change their rates at different speeds in response to changes in bond yields, and individual mortgagees and prospective mortgagees will react at differing speeds to changes in mortgage rates, both in how quickly they might react to potential pocketbook gains, and in how quickly prospective gains or losses might have an impact on political outlook. While some delay is plausible, the precise lag period is not obvious. Any mortgage, with or without a house purchase, takes time to complete. Also, 'repayment inertia' is a

widely-noted phenomenon in US mortgage markets (e.g., Green and LaCour-Little 1999), and low rates of financial literacy in the US (New York Times 20.07.2013), – as well as across OECD countries for that matter (Atkinson and Messy 2012) –, or a more charitable assumption of other life priorities, mean that individuals should not in general be expected to undertake the prospective evaluation of the impact of bond yields on mortgage rates. For these reasons we employ a variable with a one-month lag, which produces a negative coefficient. [17] Rising mortgage rates are therefore linked with decreasing rates of presidential approval. The joint significance of the two mortgage variables suggests that the more mortgage rates rise, the more negative the impact on presidential job approval rates. We then estimate the interaction effect with the one-month lag of *Mortgage*.

[Table 3. about here]

Results are presented in Table 3. Our main results still hold. This is also relevant as the inclusion of the housing market variables reduces the time span of our analysis due to data availability (1971-2010). The results of interaction models are not readily interpretable as regular additive models based on the coefficients presented in Table 3. The variables *Mortgage*, *Mortage2 and ΔYield*Mortgage* are, jointly with *ΔYield,* statistically significant at the 1 per cent level (Prob > F = 0.008).[18] This does not tell us however whether the mortgage rate has an impact on the effect of bond yields on presidential approval at *specific values* or the size of this impact. Therefore, to be able to make better inference we calculate the full range of conditional coefficients and standard errors. These are graphically illustrated in Figure 2. The solid sloping lines indicate how the value of the estimated causal effect of *Mortgage* on *ΔYield* changes

across the range. These conditional coefficients are not statistically significant if the lower bound of the 95% confidence interval is below the zero line and the upper bound is above it. The coefficients are only significant when the upper and lower bounds are above or below the zero line. Turning to the visual results presented in Figure 2, we are able to see that the conditional coefficient on bond yields is negative across the full range of observed mortgage rate changes: an increase in bond yields reduces presidential approval rates. However, bond yields have no statistically significant effect on presidential support when mortgage rates are declining. This confirms our initial housing hypothesis; a rise in bond yields only has an impact on people's approval of the president in office, if this rise translates into a rise in mortgage rates. This finding is consistent with insights from behavioural economics, particularly with the so-called 'endowment effect' (see Thaler 1980; Kahneman 2003). Our sample is roughly divided in half with 212 months recording a decline and 258 months recording a rise in mortgage rates. Once mortgage rates increase, a rise in bond yields increasingly leads to a decline in presidential approval rates, with the conditional coefficient ranging from just above -3.5 to -12. In other words, the higher the increase in mortgage rates, the stronger the bond yield effect felt in Pennsylvania Avenue. We know that foreign investors have been shown to reduce government bond yields (e.g., Warnock and Warnock 2009; Bernanke *et al.* 2011) but to increase volatility (Andritzky 2012). Our result suggests that there is no political gain from low rates if they translate into lower mortgage rates, but there is an observable cost from the increased volatility leading to increased yields and consequently higher mortgage rates. This questions the political advantage of involving and courting foreign investors in the sovereign bond market.

[Figure 2. about here]

Discussion

Bond markets affect presidential approval rates. A rise in US bond yields leads to a decline in approval rates. Our empirical analysis suggested that a key channel through which bond yields influence approval rates is the mortgage market, via changes in mortgage rates. Indeed, we find evidence that the larger the rise in mortgage rates, the stronger the impact of bond yields on presidential approval. This effect is independent of the impact of inflation, economic growth, unemployment, stock market movements, financial market risk or government expenditure. For those interested in the impact of economic conditions on public opinion, our findings are consistent with valence considerations of the economy. The change in mortgage rates could influence the pocket books of individuals or they could be seen as key measures of national economic health. Individual-level data would be required to tease apart these motivations.

With respect to the impact of markets on politics, bond yields serve as more than yet another economic indicator, working in much the same ways as unemployment or inflation. By prompting variation in presidential approval bond market investors could exert stronger and more far-reaching influence than has typically been taken for granted. According to the 'strong but narrow' hypothesis of market discipline (Mosley 2003), financial markets are said to care only about a handful of headline indicators when judging the credit risk of sovereigns in the developed world. As a result of this evaluation practice, governments are thought to retain considerable 'room to move' particularly in areas such as welfare state policies. Yet, the political consequences of presidential approval — from re-election, to legislation and foreign policy — mean

that the potential impact of bond market participants is larger than previously assumed and goes beyond forcing fiscal adjustment or pressing 'market-friendly' policies.

A domestic debt crisis or default remains a distant possibility for the US, and when political disputes over the debt ceiling have appeared to threaten such an eventuality, the yields of US government debt have generally fallen. And yet government debt and, particularly foreign, bond investors' evaluation of US creditworthiness continues to preoccupy policy-makers. Consider the testimony of Erskine Bowles (quoted in Krugman 2014: 470) co-chairman of President Obama's debt commission, when US bond yields continued to plunge to historic lows: 'But if our bankers over there in Asia begin to believe that we're not going to be solid on our debt, […] just stop and think for a minute what happens if they just stop buying our debt.' This statement suggests that, even in a low-yield environment, so-called 'bond market vigilantes' can hold sway over public officials and constrain public expenditure.

Discussion of market influence has focused especially on the potential power of foreign investors. In the case of the United States foreign investors own around half of the US Treasuries held by investors other than US government entities.[19] Although not remarkable in international comparison (see Andritzky 2012), non-resident holdings of US government bonds have risen from only 2 percent in the mid-1970s. The US is noteworthy in the concentration of its foreign investment in a small group of central banks (Labonte and Nagel 2015), and some have concerns regarding the influence of China's holding of US Treasury debt on US policy in the 2008-09 financial crisis (Thompson 2010) and potentially in the current trade dispute (Merler 2018). One analysis calculates that a reduction in foreign purchases of Treasuries of

$100 billion in a month would push US yields higher by 0.20 percent in the medium term (Beltran et al. 2012), another that foreign investment reduces yields by 0.80 percent (Warnock and Warnock 2009). The likelihood of fears of investor exit being realised are considerably reduced in the case of the United States, it is argued, because of the attraction of US Treasuries as the world's safest asset, and this attraction is a key underpinning of US monetary power (e.g., Andrews 2006; Cohen 2015). Furthermore, the implications for China itself of selling its Treasury holdings, in terms of losses and reduced exports to the United States if interest rates rose and the dollar fell, could make widespread sales unlikely, creating a stable 'Bretton Woods II' system of mutual benefit (Dooley et al. 2003).

Debates around the potential influence of particular investors are of long standing, but have been given added importance in recent years by the fact that an investor with a particularly strong influence on government bond yields in a number of developed economies is now the central bank. An independent central bank has of course always had an impact on interest rates throughout the economy through monetary policy, but the aftermath of the financial crisis from 2008 has seen central banks drawn into much more direct interventions in longer-term debt markets, most obviously through Quantitative Easing, the creation of electronic money to buy securities (for details, see Schwartz 2016). Central bank activities may have an impact on inequality (Montecino and Epstein 2015) and sectoral advantage (Jacobs and King 2016), and central banking lacks democratic accountability (Engelen *et al.* 2011; Bowman *et al.* 2013; Ronkainen and Sorsa 2018).[20] This direct link between Treasury yields and presidential approval, when the Federal Reserve owns over $2.3 trillion of

Treasuries[21] (also Fisher 2014) and is considering how and when to shrink its balance sheet, adds importantly to this debate.

This is not to suggest that bond yields rise because investors want to hurt presidential approval or drive up mortgage rates. As Rommerskirchen puts it (2015: 774): 'Market punishment is hardly the result of a normative or pedagogical agenda of market participants, but instead, first and foremost, the result of any portfolio model with standard preferences for risk and return.' That said, if Carville is right that bond markets can intimidate everybody, and the 'everybody' includes the US President via his or her approval rating, then those who take the decisions on buying and selling have a significant means of influence on US politics. This does not need to be confined to international investors or the Fed but could include very wealthy Americans or large domestic financial institutions (Hager 2014). This is also, it must be emphasized, a matter of reducing as much as increasing yields. Foreign investors reduce government borrowing costs, while also increasing volatility (Andritzky 2012), and Fed actions after the financial crisis have been aimed directly at reducing yields (Krishnamurthy and Vissing-Jorgensen 2011). Nevertheless, the link we have demonstrated between bond yields and presidential approval opens up new lines of inquiry. One area of further research, only touched on here, is comparisons across developed economies. The importance of the structure of mortgage financing is understudied in IPE and CPE, and offers a potential source of national variation in the influence of markets on politics (Schwartz and Seabrooke 2009).

There is evidence that voters reward and punish incumbents based on events the government has little or no control over, from shark attacks, to droughts, floods, and

the performance of local sports teams (Achen and Bartels 2002; Healy et al. 2010). Changes in bond yields are co-determined by events over which the US government has both considerable and little sway. It would therefore be wrong to consider the rise and fall in Treasury Yields as 'financial market shark attacks'. Bond yields do respond to so-called domestic fundamentals like inflation or debt levels (Hilscher and Nosbusch 2010; Bauer and Rudebusch 2013, but see also Naqvi 2018). In addition, the strong link between mortgage rates and bond yields is the direct result of a deliberate housing policy which brought about the dominance of the 30-year fixed-rate mortgage. A larger share of variable interest-rate mortgages, or mortgages with a shorter fixed-term would decouple mortgage rates from long-term bond yields and instead link mortgages to short-term interest rates, as in the majority of developed countries. This would reduce the influence of most bond investors, but central banks have more control over these short-term rates even in times of more conventional monetary policy. Governments, particularly in a country with considerable monetary power like the US (Cohen 2015, although see also Hardie and Maxfield 2016), are not at the mercy of fickle bond investors, but retain policy tools to shape and shield from the intimidation of the bond market. Many of these policy tools are however outside the direct control of the president, or, in certain circumstances, his or her party. The direct influence of government bond yields on presidential approval expands the potential influence of financial markets on politics.

REFERENCES

Abramowitz, Alan I., and Jeffrey A. Segal. 1986. "Determinants of the outcomes of US Senate elections." *The Journal of Politics,* 48(2): 433-439.

Achen, Christopher. 2000. "Why lagged dependent variables can suppress the explanatory power of the other independent variables." Prepared for the Annual Meeting of the Political Methodology Section of the American Political Science Association, UCLA, July 20-22, 2000.

Achen, Christopher and Larry Bartels. 2004. "Musical Chairs: Pocketbook Voting and the Limits of Democratic Accountability." Paper presented at the Annual Meeting of the American Political Science Association, Chicago, IL.

Achen, Christopher and Larry Bartels. 2002. "Blind Retrospection: Electoral Responses to Droughts, Flu, and Shark Attacks." Paper presented at the Annual Meeting of the American Political Science Association, Boston, MA.

Alter, Alison and Lucy Goodhart. 2003. "Market Forces? The US Stock Market and Presidential Approval" Unpublished manuscript: http://www.nyu.edu/gsas/dept/politics/seminars/goodhart0908.pdf (last accessed 12.2.2017).

Anderson, Christopher J. 2000. "Economic voting and political context: a comparative perspective". *Electoral Studies* 19: 151-70.

Andrade, Lydia, and Garry Young. 1996. "Presidential agenda setting: Influences on the emphasis of foreign policy". *Political Research Quarterly*, 49(3): 591-605.

Andritzky, Jochen. 2012. "Government Bonds and Their Investors: What Are the Facts and Do They Matter?" *IMF Working Paper* WP/12/158.

Atkinson, Adele, and Flore-Anne Messy. 2012. "Measuring Financial Literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study", *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 15, OECD Publishing.

Asness, Clifford. 2003. "Fight the Fed model". *The Journal of Portfolio Management*, 30(1): 11-24.

Barrett, Andrew W., and Matthew Eshbaugh-Soha. 2007. "Presidential success on the substance of legislation". *Political Research Quarterly*, 60(1): 100-112.

Beck, Nathaniel. 1991. "Comparing dynamic specifications: The case of presidential approval". *Political Analysis*, 3: 51-87.

Beltran, Daniel O., Maxwell Kretchmer, Jaime Marquez, and Charles P. Thomas. 2012. "Foreign Holdings of U.S. Treasuries and U.S. Treasury Yields", Federal Reserve Board, Washington D.C.

Berlemann, Michael, and Sören Enkelmann. 2014. "The economic determinants of US Presidential approval: a survey". *European Journal of Political Economy*, 36(4): 41-54.

Bernanke, Ben S. 2005. 'The Global Savings Glut and the US Current Account Deficit' Remarks at the Sandridge Lecture, Virginia Association of Economists, 10 March.

Bernanke, Ben S., Carol Bertaut, Laurie Pounder DeMarco and Steven B. Kamin. 2011. 'International Capital Flows and the Returns to Safe Assets in the United States'. Banque de France Financial Stability Review 15: 13-26.

Bernoth, Kerstin, and Burcu Erdogan. 2012. "Sovereign bond yield spreads: A time-varying coefficient approach". *Journal of International Money and Finance*, 31(3): 639-656.

Bertaut, Carol, Laurie Pounder DeMarco, Steven Kamin and Ralph Tryon. 2011. 'ABS Inflows to the United States and the Global Financial Crisis' Board of Governors of the Federal Reserve System International Finance Discussion Papers No.1028, August.

Bialkowski, Jedrzej, Katrin Gottschalk, and Tomasz Piotr Wisniewski. 2008. "Stock market volatility around national elections." *Journal of Banking & Finance,* 32 (9): 1941-53.

Black, William K. 2019. 'The Day Orthodox Economists Lost Their Minds and Integrity' New Economic Perspectives Blogpost. Available at http://neweconomicperspectives.org/2019/03/the-day-orthodox-economists-lost-their-minds-and-integrity.html, accessed 8 May 2019.

Bowman, Andrew, Ismail Erturk, Julie Froud, Sukhdev Johal, Adam Leaver, Michael Moran, and Karel Williams. 2013. 'Central-Bank Led Capitalism?' *Seattle University Law Review* 36: 455-87.

Brace, Paul, and Barbara Hinckley. 1991. "The structure of presidential approval: Constraints within and across presidencies". *The Journal of Politics*, 53(04): 993-1017.

Brehm, John. 1993. *The Phantom Respondents: Opinion Surveys and Political Representation*. Ann Arbor: University of Michigan Press.

Brody, Richard, and Benjamin Page. 1975. "The Impact of Events on Presidential Popularity: The Johnson and Nixon Administrations." In *Perspectives on the Presidency*, ed. A. Wildavsky. Boston: Little Brown.

Burden, Barry C., and Anthony Mughan. 2003. "The international economy and presidential approval." *Public Opinion Quarterly,* 67 (4): 555-578.

Butler, David and Donald E. Stokes. 1969. *Political Change in Britain*. New York: St

Martin's

Caballero, Ricardo and Arvind Krishnamurthy. 2009. 'Global Imbalances and Financial Fragility'. *American Economic Review* 99(2): 584-8.

Campello, Daniela. 2015. *The politics of market discipline in Latin America: globalization and democracy*. Cambridge University Press.

Canes-Wrone, Brandice, and Scott De Marchi. 2002. "Presidential approval and legislative success". *The Journal of Politics*, 64(2): 491-509.

Canes Wrone, Brandice, and Kenneth W. Shotts. 2004. "The conditional nature of presidential responsiveness to public opinion". *American Journal of Political Science*, 48(4): 690-706.

Carroll, Christopher D., Misuzu Otsuka, and Jiri Slacalek. 2006. "How Large is the Housing Wealth Effect? A New Approach". NBER Working Paper No.12746.

Clarke, Harold D., Jonathan Rapkin, and Marianne C. Stewart 1994a. "A president out of work: A note on the political economy of presidential approval in the Bush years". *British Journal of Political Science*, 24(4): 535-548.

Clarke, Harold D, Marianne Stewart. 1994b. Prospections, Retrospections, and Rationality: The 'Bankers' Model of Presidential Approval Reconsidered". *American Journal of Political Science,* 38(4): 1104-1123.

Clarke, Harold D, David Sanders, Marianne C. Stewart, Paul Whiteley. 2009. *Performance Politics and the British Voters.* Cambridge University Press

Cohen, Benjamin. 2015. *Currency power: understanding monetary rivalry*. Princeton University Press.

Codogno, Lorenzo, Carlo Favero, and Alessandro Missale. 2003. "Yield spreads on EMU government bonds". *Economic Policy*, 18(37): 503-532.

Dell'Erba, Salvatore, Ricardo Hausmann, and Ugo Panizza. (2013). "Debt Levels, Debt Composition, and Sovereign Spreads in Emerging and Advanced Economies". *Oxford Review of Economic Policy*, 29(3): 518-547.

Dooley, Michael P., David Folkerts-Landau, and Peter Garber. 2003. "An Essay on the Revived Bretton Woods System". NBER Working Paper No.9971.

Druckman, James N., and Lawrence R. Jacobs. 2015. *Who Governs?: Presidents, Public Opinion, and Manipulation*. University of Chicago Press.

Edwards III, George C., William Mitchell, and Reed Welch. 1995. "Explaining Presidential Approval: The Significance of Issue Salience". *American Journal of Political Science,*

39(1): 108-134.

Engelen, Ewald, Ismail Erturk, Julie Froud, Sukhdev Johal, Adam Leaver, Mick Moran, Adriana Nilsson and Karel Williams. 2011. *After the Great Complacence*, Oxford: Oxford University Press.

Goldberg, Linda S., and Deborah Leonard. 2003. "What moves Sovereign Bond Markets? The Effects of Economic News on US and German Yields", *Current Issues in Economics and Finance*, Rederal Reserve Bank of New York, 9 (9).

Golden, David G., and James M. Poterba. 1980. "The price of popularity: The political business cycle reexamined". *American Journal of Political Science*, 24(4): 696-714.

Estrada, Javier. 2009. "The fed model: The bad, the worse, and the ugly". *The Quarterly Review of Economics and Finance*, 49(2): 214-238.

Erikson, Robert S., Michael B. MacKuen, and James A. Stimson. 2000. "Bankers or peasants revisited: economic expectations and presidential approval." *Electoral Studies*, 19(2): 295-312.

Fauvelle-Aymar, Christine and Mary Stegmaier, 2013. "The stock market and U.S. presidential approval", *Electoral Studies,* 32(2): 411–417.

Federal Reserve Bank of New York (2018) Quarterly Report on Household Debt and Credit Q2 2018. Available at https://www.newyorkfed.org/medialibrary/interactives/householdcredit/data/pdf/HHDC_2018Q2.pdf, accessed 30 August 2018.

Federal Research Bank of St Louis (2017) FRED data

Fiorina M. 1981. *Retrospective Voting in American National Elections*. New Haven: Yale University Press

Fisher, Richard. 2014. "Forward Guidance," remarks before the Asia Society Hong Kong Center, Federal Reserve Bank of Dallas, April 4, 2014, http://www.dallasfed.org/news/speeches/fisher/2014/fs140404.cfm (last accessed 5.4.2015).

Flandreau, Marc, Jacques Le Cacheux, and Frédéric Zumer. 1998. '"Stability without a pact ? Lessons from the European gold standard 1880-1914". mimeo.

Freddie Mac (2018) "2018 Economic and Housing Research Report". Available at http://www.freddiemac.com/research/pdf/201805-Outlook.pdf, accessed 30 August 2018Gaines, Brian. 2002. "Where's the rally? Approval and trust of the president, cabinet, congress, and government since September 11". *Political Science and Politics*, 35(3): 531–536.

Geer, John. 1996. *From tea leaves to opinion polls: A theory of democratic leadership*. Columbia University Press.

Green, Richard K. and Michael LaCour-Little. 1999. “Some Truths About Ostriches: Who Doesn’t Repay Their Mortgages and Why They Don’t.” *Journal of Housing Economics*, 8(3): 233-48.

Grossman, Herschel, and John B. Van Huyck. 1989. "Sovereign Debt as a Contingent Claim: Excusable Default, Repudiation, and Reputation," *NBER Working Papers* 1673, National Bureau of Economic Research.

Hager, Sandy Brian. 2014. “What Happened to the Bondholding Class? Public Debt, Power and the Top One Per Cent”. *New Political Economy*, 19(2): 155-182.

Hardie, Iain. and Sylvia Maxfield. 2016. “Atlas constrained: the US external balance sheet and international monetary power.” *Review of International Political Economy*, 23(4): 583-613.

Hardie, Iain. 2012. *Financialization and government borrowing capacity in emerging markets*. Palgrave Macmillan.

Healy, Andrew J., Neil Malhotra, and Cecilia Hyunjung Mo. 2010. “Irrelevant events affect voters' evaluations of government performance”. *Proceedings of the National Academy of Sciences*, 107(29): 12804-12809.

Helleiner, Eric and Jonathan Kirshner, eds. 2009. *The Future of the Dollar*. Ithaca NJ: Cornell University Press.

Hetherington, Marc J., and Michael Nelson. 2003. "Anatomy of a rally effect: George W. Bush and the war on terrorism." *Political Science & Politics*, 36(1): 37-42.

Herron, Michael C., James Lavin, Donald Cram, and Jay Silver. 1999. “Measurement of political effects in the United States economy: a study of the 1992 presidential election”. *Economics & Politics*, 11(1): 51-81.

Hess, Gary. 2009. *Presidential Decisions for War: Korea, Vietnam, the Persian Gulf, and Iraq*. JHU Press.

Hilscher, Jens, and Yves Nosbusch. 2010. "Determinants of sovereign risk: Macroeconomic fundamentals and the pricing of sovereign debt." *Review of Finance*, 14: 235-262.

Hummel, Patrick, and David Rothschild. 2014. ‘Fundamental models for forecasting elections at the state level’. *Electoral Studies*, 35:123-139.

Jacobs, Lawrence R. and Desmond King (2016) *Fed Power: How Finance Wins* Oxford and New York: Oxford University Press.

Jefferson, Thomas. 1796. *To Edward Rutledge, Monticello, Dec 27*, available at

http://tjrs.monticello.org/letter/1740 (last accessed 12.4.2016).

Jones, Steven T., and Kevin Banning. 2009. “US elections and monthly stock market returns”. *Journal of Economics and Finance*, 33(3): 273-294.

Kahneman, Daniel. 2003. “Maps of bounded rationality: Psychology for behavioral economics." *The American economic review,* 93(5): 1449-1475.

Kaminska, Iryna, Dimitri Vayanos, and Gabriele Zinna. 2011. “Preferred-habitat investors and the US term structure of real rates”, Bank of England Working Paper No. 435.

Karanassou, Marika, and Hector Sala. 2010. “The US inflation–unemployment trade-off revisited: New evidence for policy-making”, *Journal of Policy Modeling*, 32(6): 758-777.

Kernell, Samule. 1977. "Presidential popularity and negative voting: An alternative explanation of the midterm congressional decline of the president's party." *American Political Science Review*, 71(1): 44-66.

- 1978. “Explaining presidential popularity: How ad hoc theorizing, misplaced emphasis, and insufficient care in measuring one's variables refuted common sense and led conventional wisdom down the path of anomalies”. *American Political Science Review*, 72(02): 506-522.

Kiewiet, D. Roderick and Michael S. Lewis-Beck. 2011. “No Man is an Island: Self-interest, the public interest and sociotropic voting. *Critical Review* 23(3): 303-19

Kinder, D.R. and D. Roderick Kiewiet. 1981. “Sociotropic politics: the American case” *British Journal of Political Science* 11(2): 129-61

Krishnamurthy, Arvind, and Annette Vissing-Jorgensen. 2011. “The effects of quantitative easing on interest rates: channels and implications for policy” (No. w17555). *National Bureau of Economic Research*.

Krugman, Paul. 2014. “Currency regimes, capital flows, and crises”. *IMF Economic Review*, 62(4): 470-493.

Kuper, Simon “The battle between two elites: the haves and have-yachts” Financial Times Aug 30. https://www.ft.com/content/6e3e5b2c-ab18-11e8-89a1-e5de165fa619?accessToken=zwAAAWYLqKKIkc9uPlssqxgR6NOJoeXeFl-mGQ.MEUCIQDpj_WIjcHKgLoJTWzqQq4JV-JEag9qXaZWdVMwchPuigIgDcRK-yxxh0zbhbfuIv_xhiESVV0_Kj7s3a04wi2sE78&sharetype=gift Accessed on 21 Sept 2018

Lea, Michael. 2010. *International Comparison of Mortgage Product Offerings* *18 (Research Institute for Housing America, Sept 2010), available at

http://www.housingamerica.org/rIha/rIha/Publications/74023_10122_research_rIha_lea_report.pdf (last accessed May 2013).

Lebo, Matthew J., and Daniel Cassino . 2007. “The aggregated consequences of motivated reasoning and the dynamics of partisan presidential approval”. *Political Psychology*, 28(6): 719-746.

Labonte, Marc, and Jared C. Nagel. 2015."Foreign holdings of federal debt." *CRS report for Congress*.

Levy, Jack. 1989. "The Diversionary Theory of War." In M. Midlarsky, ed., *Handbook of War Studies*, Chapter 11. Boston: Unwin Hyman.

Lewis-Beck, Michael S., and Mary Stegmaier. 2000. “Economic determinants of electoral outcome”. *Annual Review of Political Science*, 3(1): 183-219.

Lewis-Beck, Michael S and Richard Nadeau. 2011. “Economic voting theory: Testing new dimensions” *Electoral Studies* 30: 288-94

Lewis-Beck, Michael S., Richard Nadeau and Martial Foucault. 2012. “The Compleat Economic Voter: New Theory and British Evidence” *British Journal of Political Science* 43: 241-61

Lewis-Beck, Michael S. and Marina Costa Lobo. “The Economic Vote: Ordinary vs Extraordinary Times” in Kai Arzheimer, Jocelyn Evans and Michael Lewis-Beck. *Sage Handbook of Electoral Behaviour*. Sage: 606-29.

Lovett, John, Shaun Bevan, and Frank R. Baumgartner. 2015. “Popular Presidents Can Affect Congressional Attention, for a Little While” *Policy Studies Journal*, 43(1): 22-43.

MacKuen, Michael B., Robert S. Erikson, and James A. Stimson. 1992. “Peasants or Bankers? The American Electorate and the U.S. Economy.” *The American Political Science Review*, 86(3): 597– 611.

Mcavoy, Gregory. 2006 “Stability and Change: The Time Varying Impact of Economic and Foreign Policy Evaluations on Presidential Approval”. *Political Research Quarterly,* 59(1): 71-83.

Merler, Sylvia (2018) ‘US tariffs and China’s holding of Treasuries’ Blogpost, 2 July. Available at http://bruegel.org/2018/07/us-tariffs-and-chinas-holding-of-treasuries/, accessed 21 August 2018.

Merler, Silvia and Jean Pisani-Ferry (2017) ‘Bruegel database of sovereign bond holdings’.

Mertens, D. (2017). Putting ‘merchants of debt’ in their place: the political economy of retail banking and credit-based financialisation in Germany. *New Political Economy*, *22*(1), 12-30.

Monroe, Kristen, and Lynda Erickson. 1986. The economy and political support: The Canadian case. *The Journal of Politics*, 48(3): 616-647.

Montecino, Juan Antonio and Gerald Epstein (2015) 'Did Quantitative Easing Increase Income Inequality?' Political Economy Research Institute, University of Massachusetts Amherst Working Paper Series No. 407, October.

Morgan, T. Clifton, and Kenneth N. Bickers. 1992. "Domestic Discontent and the External Use of Force." *Journal of Conflict Resolution*, 36: 25-52.

Mortgage Bankers Association. 2015. *MBA Economic and Mortgage Finance Commentary: March 2015.* Available at https://www.mba.org/news-research-and-resources/forecasts-data-and-reports/forecasts-and-commentary, accessed 16 April 2015.

Mosley, Layna. 2003. *Global capital and national governments*. Cambridge University Press.

Mueller, John. 1970. Presidential popularity from Truman to Johnson. *American Political Science Review*, 64(01): 18-34.

Mueller, John. 1973. *War, presidents, and public opinion*. John Wiley & Sons.

Nadeau, Richard, Richard G. Niemi, David P. Fan, and Timothy Amato. 1999. "Elite economic forecasts, economic news, mass economic judgments, and presidential approval." *Journal of Politics*, 61(1): 109-35.

Naqvi, N. 2018. Manias, panics and crashes in emerging markets: an empirical investigation of the post-2008 crisis period. *New Political Economy*, https://doi.org/10.1080/13563467.2018.1526263.

Newman, Brian. 2002. "Bill Clinton's approval ratings: The more things change, the more they stay the same." *Political Research Quarterly*, 55(4): 781-804.

Newman, Brian, and Andrew Forcehimes. 2010 "Rally Round the Flag" Events for Presidential Approval Research." *Electoral Studies,* 29(1): 144-54.

Newport, Frank, and Joseph Carroll. 2003. "Support for Bush significantly higher among more religious Americans". *Gallup Poll Tuesday Briefung*, 43.

Nicholson, Stephen P., Gary M. Segura, and Nathan D. Woods. 2002. "Presidential approval and the mixed blessing of divided government." *Journal of Politics* 64 (3): 701-20.

Nickelsburg, Michael and Helmut Norpoth. 2000. "Commander-in-chief or chief economist? The president in the eye of the public." *Electoral Studies* , 19(2-3): 313-32.

Norpoth, Helmut. 1984. "Economics, politics, and the cycle of presidential popularity". *Political Behavior,* 6(3): 253-273.

Norpoth, Helmut. 1996. Presidents and the prospective voter. *The Journal of Politics*, 58(3):

776-792.

Ostrom, Charles, and Renee Smith. 1985. “Promise and performance: A dynamic model of presidential popularity”. *American Political Science Review*, 79(02): 334-358.

Ostrom, Charles W., and Renee M. Smith. 1992. “Error correction, attitude persistence, and executive rewards and punishments: A behavioral theory of presidential approval”. *Political Analysis*, 4: 127-183.

Ostrom, Charles, and Brian Job. 1986. "The President and the Political Use of Force." *American Political Science Review*, 80: 541-66.

Parker, Suzanne. 1995. "Toward an understanding of "rally" effects - Public opinion in the Persian Gulf War." *Public Opinion Quarterly*, 59(4): 526-46.

Pelzman, Sam. 1992. “Voters as Fiscal Conservatives”, *Quarterly Journal of Economics*, 57: 327–361.

Pantzalis, Christos, David A. Stangeland, and Harry J. Turtle. 2000. “Political elections and the resolution of uncertainty: the international evidence”. *Journal of banking & finance*, 24(10): 1575-1604.

Piketty, Thomas. 2018. “Brahmin Left vs Merchant Right: Rising Inequality and the Changing Structure of Political Conflict WID. World Working Paper Series 2018/7 http://piketty.pse.ens.fr/files/Piketty2018.pdf Accessed on 21 Sept 2018

Polanyi, Karl. 1957. *The Great Transformation:(the Political and Economic Origin of Our Time)*. Beacon Press.

Polsby, Nelson W., Aaron B. Wildavsky, and David A. Hopkins. 2008. *Presidential elections: Strategies and structures of American politics*. Rowman & Littlefield.

Powell Jr, G. Bingham, and Guy D. Whitte. 1993. “A cross-national analysis of economic voting: taking account of the political context”. *American Journal of Political Science*, 37(2): 391-414.

Ragsdale, Lyn. 1987. “Presidential speechmaking and the public audience: Individual presidents and group attitudes”. *The Journal of Politics*, 49(03): 704-736.

Roberts, Brian. 1990. “Political institutions, policy expectations, and the 1980 election: a financial market perspective”. *American Journal of Political Science*, 34(2): 289-310.

Rommerskirchen, Charlotte. 2015. "Debt and punishment: market discipline in the Eurozone." *New Political Economy*, 20(5): 752-782.

Ronkainen, Antti and Ville-Pekka Sorsa. 2018. “Quantitative Easing Forever? Financialisation and the Institutional Legitimacy of the Federal Reserve’s Unconventional Monetary Policy”, *New Political Economy*, 23:6, 711-727,

Rusconi, Rob. 2008. “National annuity markets: features and implications”, *OECD Working Paper on Insurance and Private Pensions*, No. 24

Saiegh, Sebastian. 2005. “Do countries have a “democratic advantage”? Political institutions, multilateral agencies, and sovereign borrowing”. *Comparative Political Studies*, 38(4): 366-387.

Salomons, Roelof. 2006. “A tactical implication of predictability: Fighting the fed model”. *The Journal of Investing*, 15(2): 87-98.

Schultz, Kenneth A., and Barry R. Weingast. 2003. “The democratic advantage: institutional foundations of financial power in international competition”. *International Organization*, 57(01): 3-42.

Schwartz, Herman Mark. 2009. “Housing Finance, Growth, and the U.S. Dollar’s Surprising Durability”, in Eric Helleiner and Jonathan Kirchner (eds.), *The Future of the Dollar*, Ithaca: Cornell University Press, 88-116.

Schwartz, Herman Mark and Leonard Seabrooke. (eds) *The Politics of Housing Booms and Busts*, Basingstoke and New York: Palgrave Macmillan.

Schwartz, Herman Mark. 2016. Banking on the FED: QE1-2-3 and the Rebalancing of the Global Economy, New Political Economy, 21:1, 26-48.

Shafir, Eldar, Peter Diamond and Amos Tversky. 1997. “Money Illusion”, *The Quarterly Journal of Economics*, 112(2): 341-74.

Sen, Sedef, and Murat Donduran. 2017. "Does stock market performance affect the government satisfaction rating in the UK?." *Empirical Economics*, 53 (3): 999-1009

Smyth, David J., and Pami Dua. 1989. “The public's indifference map between inflation and unemployment: Empirical evidence for the Nixon, Ford, Carter and Reagan presidencies”. *Public Choice*, 60(1): 71-85.

Stock, James and Mark Watson. 2012. *Introduction to Econometrics*. 4th ed. Boston, Mass.: Pearson/Addison-Wesley.

Stokes, Donald E. 1963 “Spatial Models of Party Competition” *American Political Science Review* 57: 368-77

Thaler, Richard. 1980. “Toward a positive theory of consumer choice”. *Journal of Economic Behavior & Organization*, 1(1): 39-60.

Thompson, Helen 2010. *China and the Mortgaging of Americ*a, Basingstoke: Palgrave Macmillan.

Tomz, Michael. 2007. *Reputation and International Cooperation: Sovereign Debt Across Three Centurie*s. Princeton: Princeton University Press.

University of Michigan . 2018. Survey of Consumers. Available online at: http://www.sca.isr.umich.edu. (last accessed 22.2.2018).

Vaaler, Paul, Burkhard Schrage, and Steven Block. 2005. “Counting the investor vote: Political business cycle effects on sovereign bond spreads in developing countries”. *Journal of International Business Studies*, 36(1): 62-88.

Warnock, Francis and Veronica Warnock. 2009. “International Capital Flows and US Interest Rates”. *Journal of International Money and Finance*, 28(5): 903-919.

Yardeni, Edward. 1997. “Fed’s stock market model finds overvaluation”. *Topical Study, 38.*

Yardeni, Edward. 1999. “New, improved stock valuation model”. *Topical Study, 44.*

Zaller, John R. 1998. “Monica Lewinsky’s contribution to political science”. *PS: Political Science and Politics*, 31(2): 182–189.

Zywicki, Todd. 2013. "The Behavioral Law and Economics of Fixed-Rate Mortgages (and Other Just-So Stories)." *Supreme Court Economic Review*, 21(1): 157-214.

Notes

[1] The market yields which determine the cost of government borrowing of course represent the aggregation of the actions of market actors in reacting to information; the degree to which yields rise or fall as a result of any president's policies or changing macroeconomic conditions will be determined by buying and selling of US Treasuries that result. Although external events will have an impact on yields, therefore, this is only because of investor assessment of those events, and this assessment will vary by borrower (Mosley 2003), investor (Hardie 2012) or indeed over time.

[2] These patrimonial explanations are what Piketty (2018) has recently referred to as the Brahmin Left and Merchant Right, or, in one summary the 'haves and have yachts' (Kuper 2018)

[3] For recent research on the impact of market pressures on politics see inter alia Mosley 2003: esp. ch.5; Hardie 2012; Campello 2015.

[4] Lewis-Beck and Stegmaier (2000), in their review of the literature, conclude that evidence for retrospective pocket book voting is low, but that voters' prospective views on their personal economic situation have a significant influence.

[5] Sovereign bond yields measure the interest payments that investors demand to lend money to governments. This domestic-sided description does not take into account external factors, notably international risk factors (so-called push factors). Our quantitative models account for global risk aversion.

[6] In one estimate, annual volumes varied from US$2532 million to US$234 billion for the period 2000-2016, compared to variation in borrowing for home purchase of US$1512 and US$505 billion (Mortgage Bankers Association 2015: 10).

[7] There are also ways in which higher government bond yields help individuals financially, but these are less prevalent. For example, pensioners can purchase a fixed rate annuity to give them a guaranteed (nominal) income. The income they receive will be higher if government bond yields are higher, as insurers use bond yields to price new annuities (similar to the pricing of mortgages, U.S. bond yields are used as a benchmark rate for the domestic annuity market). The U.S. annuity market, relative to the size of its economy, is small. 'Given the choice, people do not choose to annuitize as expected to when attaining the end of their working lives' (Rusconi 2008). In 2005 the U.S. annuity market totaled US$ 15.8 billion – a far cry from the US$ 10 trillion mortgage industry (LIMRA 2005). Along similar lines, pension plans

rely on high bond yields to hit their target investment returns. The projections of future retirement income will likely to lower and the deficit on salary-linked pension schemes higher when bond yields are low. Persistently low bond yields therefore may put pensioner's payouts at risk. Although this poses a real threat to the sustainability of pension plans, its materialization is not likely to be captured in the time-frame of our analysis when most pensions have been considered relatively safe and the underfunding of existing schemes cannot be solely attributed to a low-yield environment.

[8] The widely accepted 'money illusion' suggests that individuals focus more on nominal than real monetary values (see, e.g. Shafir et al. 1997).

[9] Serious economic difficulties may well also result in falling inflation.

[10] The so-called 'honeymoon effect' is not a new phenomenon: Thomas Jefferson (1976) famously proclaimed that 'I know well that no man will ever bring out of that office the reputation which carries him into it. The honey moon would be as short in that case as in any other, and its moments of ecstasy would be ransomed by years of torment and hatred'.

[11] A dummy variable controlling for the (failed) impeachment procedure against President Clinton in the aftermath of the Lewinsky affair fails to reach statistical significance (and is not retained in the final model). This confirms Zaller's (1998) and Newman's (2002) finding that although approval models show that the public punishes presidents for scandals, Clinton remained popular after several scandals, – indeed approval ratings actually increased during the Lewinsky investigation and impeachment proceedings.

[12] Following Norpoth (1984), we code the variable *Vietnam* as (-1) under Johnson and (+1) under Nixon (and (0) elsewhere). The effects of both Gulf Wars are measured by two dummies equal to (1) between August 1990 and January 1991 and between March and May of 2003. We also control for the patriotic revival after 9/11. The increase in presidential approval (from 55% in August 2001 to 89% in September 2001) is the most substantial boost yet recorded, overtaking FDR's approval surge after Pearl Harbor. What is more this effect has been slower to decay than previous rallies (Gaines 2002; Hetherington and Nelson 2003). Therefore, instead of including a binary dummy variable, we create a variable that is zero in the quarters prior to September 11, and 1/i starting from that quarter (with i = 1, 2, 3, . . .). In addition, we control for the effects of two scandals involving the president. First, *Watergate* is a dummy taking the value (1) from July 1973 to August 1974, and (0) otherwise. Second,

Iran-Contra is a dummy equal to (1) between November 1986 and March 1987, and (0) otherwise.

[13] There is no agreement on whether economic determinants enter the popularity function contemporaneously or with a time-lag (t-…). We also ran our model with lagged economic controls (t-1). Results hold (see Online Appendix Figure A2).

[14] There is a wider debate as to the pros and cons of lagged dependent variables, which has been reviewed and analysed by Achen (2000, see also Beck 1991: 66).

[15] Using alternate lag values (either larger or smaller) had no effect on the overall results.

[16] We also correlated the difference in ten-year bond yields with other housing market variables, namely house prices, homeownership rates and household debt and found no strong pattern of association.

[17] We also ran our interaction model with lags of the change in bond yields (t-1, t-2, and t-3 respectively), where the marginal effect was statistically not significant. This suggests that the impact of a change in bond yields on presidential approval is immediate.

[18] There seems to be however no simple correlation between presidential approval rates and the variables *Mortgage*, *Mortage2 and ΔYield*Mortgage.*

[19] Source: US Treasury

[20] In parallel, some interpretations of modern monetary theory (MMT) argue that governments borrowing in their own currency face no hard budget constraint, as they can always create money to repay their debts, and therefore budget deficits do not matter. MMT scholars have denied making such a claim (e.g., Black 2019). The increasingly vituperative debate around MMT has involved accusations that some leading economists have misunderstood the theory, and we would not claim the expertise to engage in it. However, any policy move influenced by MMT involving the greater integration of monetary and fiscal policy and control of government bond yields would, it is suggested here, have direct implications for presidential approval. An alternative outcome of such debates, simply a more relaxed view of fiscal deficits, would only make the political implications identified here more important.

[21] As of 15 August 2018. Source: FRED Economic Data, Federal Reserve Bank of St. Louis.